

We claim:

1 1. A method for producing road or street section data for a digital map, said
2 method comprising the steps of:
3 a) providing a vehicle (7) with an image producing device (1) and a
4 position determining device (4), said image producing device (1) comprising
5 means for generating image data of surroundings of the vehicle and said position
6 determining device (4) comprising means for generating vehicle position data;
7 b) driving said vehicle over at least one road or street section (8);
8 c) during the driving of the vehicle of step b), simultaneously collecting
9 said image data with said image producing device (1) and acquiring said vehicle
10 position data with said position determining device (4);
11 d) analyzing said image data with an image processing means (2), in
12 order to put together or assemble a road or street section description; and
13 e) correlating said vehicle position data and said road or street section
14 description with a correlation means (5), in order to produce said road or street
15 section data for said digital map.

1 2. The method as defined in claim 1, wherein said image producing device (1)
2 comprises at least one camera.

1 3. The method as defined in claim 1, wherein said image producing device (1)
2 comprises a monocular image generating device or a stereoscopic image
3 generating device.

1 4. The method as defined in claim 1, wherein said vehicle position data
2 comprises at least one absolute position of said vehicle (7) in relation to a fixed
3 first coordinate system (24).

1 5. The method as defined in claim 1, wherein the vehicle position data comprises
2 an orientation of said vehicle in relation to an origin of a fixed first coordinate
3 system (24).

1 6. The method as defined in claim 1, wherein said road or street section
2 description includes a course of the at least one road or street section (8) relative
3 to the vehicle (7), a spacing (10) between a vehicle longitudinal axis (A) and a
4 street or road edge (E), a width (12) of the at least one street or road section (8),
5 a number of lanes (9) on the at least one road or street section (8), a width (11)
6 of a lane (9) in which the vehicle (7) travels, a curvature of the at least one street
7 or road section (8), standing or parking space information, cycle lane information,
8 lane quality information, traffic sign information, building information or alternative
9 lane guidance.

1 7. The method as defined in claim 1, wherein the road or street section data
2 includes the road or street section description at least partially defined in relation
3 to a first coordinate system (24).

1 8. The method as defined in claim 1, wherein the road or street section data
2 includes a statement regarding a course of at least one road or street section (8)
3 in relation to a fixed first coordinate system (24).

1 9. The method as defined in claim 1, further comprising comparing said road or
2 street section data with pre-existing road or street section data from a pre-
3 existing digital map (19) by means of a comparison means (21), in order to detect
4 contingent deviations.

1 10. The method as defined in claim 9, further comprising correcting or updating
2 said pre-existing digital map with said contingent deviations obtained during the
3 comparing.

1 11. The method as defined in claim 9 or 10, further comprising transmitting said
2 contingent deviations or said road or street section data to a central station (26)
3 for reception by the central station (26).

1 12. A device for producing road or street section data for a digital map, said
2 device comprising

3 a vehicle (7) for traveling over roads or streets, said vehicle comprising an
4 image producing device (1) for generating image data of surroundings of the
5 vehicle and a position determining device (4) for generating vehicle position data
6 in relation to a fixed first coordinate system (24);

7 image processing means (2) for analyzing said image data to produce a
8 road or street section description, said road or street section description including
9 at least one statement regarding a course of at least one road or street section
10 (8) over which said vehicle travels in relation to a movable second coordinate
11 system (25), said movable second coordinate system (25) being movable in
12 relation to said fixed first coordinate system (24);and

13 correlation means (5) for correlating said vehicle position data and said
14 road or street section description in order to produce said road or street section
15 data for said digital map in relation to said fixed first coordinate system (24).

1 13. The device as defined in claim 12, wherein said road or street section
2 description includes a course of the at least one road or street section (8) relative
3 to the vehicle (7), a spacing (10) between a vehicle longitudinal axis (A) and a
4 street or road edge (E), a width (12) of the at least one street or road section (8),
5 a number of lanes (9) on the at least one road or street section (8), a width (11)
6 of a lane (9) in which the vehicle (7) travels, a curvature of the at least one street
7 or road section (8), standing or parking space information, cycle lane information,
8 lane quality information, traffic sign information, building information or alternative
9 lane guidance.

1 14. The device as defined in claim 12, further comprising comparison means (21)
2 for comparing said road or street section data that are produced with
3 corresponding pre-existing road or street section data of a pre-existing digital
4 map (19) in order to detect contingent deviations.

1 15. The device as defined in claim 12, further comprising communication means
2 (23) for transmission of information entities to a central station (26) for reception
3 by said central station.

1 16. The device as defined in claim 12, further comprising communication means
2 (23) for exchange of information entities with a central station (26).

1 17. The device as defined in claim 12, further comprising an interface device for
2 supplying said road or street section description to said correlation means, and
3 wherein said interface device is a hardware device or a software device.

1 18. The device as defined in claim 12, further comprising an interface device for
2 supplying said vehicle position data to said correlation means, and wherein said
3 interface device is a hardware device or a software device.